REMARKS

Claims 1-3, 5-10, 32-35 and 37-42 remain in this application. Claims 11-31 were previously cancelled. Claims 4 and 36 are currently cancelled. Claims 1, 3, 8, 32, 33, 34 and 35 have been amended.

Applicants thank the Examiner for the detailed study of the application, and have analyzed the rejection of pending claims 1-10 and 32-42 as unpatentable over the combination of Spitz and Fister.

Applicants note that Spitz discloses a rectifier diode subassembly with tension relief for a connected head wire and a method of manufacturing this diode subassembly. The diode cup has solder layers 18 and 22. A cup, die and lead 24 include an encapsulant 40. The Examiner admits that nowhere does Spitz disclose or suggest any use of an argon/hydrogen atmosphere. Applicants also note that Spitz does not disclose the temperature of the atmosphere in which reflow soldering could occur.

The claimed invention as presented in this amendment is advantageous for the manufacture of pressed fit diode subassemblies to provide a longer diode life, optimum diode production, and enhanced rectifier operation. It has been found that diode subassemblies as claimed can be manufactured by reflow soldering the semiconductor diode die and diode lead within a diode cup in an argon/hydrogen atmosphere with predominantly argon over hydrogen in volume and in an atmosphere of up to about 400 degrees C.

Although Fister may teach a reflow process using a lead-indium-tin solder preform soldered in the presence of an inert gas mixed with hydrogen at 100 degrees C (column 7,

lines 28-58), the Fister reference specifically teaches that the semiconductor die is attached to a hermetically sealed package with a bonding composition, for example, as in semiconductor die and integrated circuit technology. In Fister, it is the substrate that is heated. This substrate is placed on a hot stage and the substrate heated to a temperature of at least about the melting point of the solder, i.e., about 100 degrees C.

Also, it is only important in Fister to have an inert atmosphere but no specific gases. No important advantage is given to a specific inert gas or mixture of inert gases. Fister teaches that an inert gas is used. This inert atmosphere could be formed by nitrogen, argon, a forming gas, or nitrogen-4%, hydrogen and neon to protect against oxidation. Indeed, there is no teaching or suggestion of a combination of argon and hydrogen. The only combination of gas taught by Fister is a combination of nitrogen-4%, hydrogen and neon, as noted particularly in column 7, line 40. Not only is there no suggestion for an argon and hydrogen atmosphere, but there is also no suggestion that any argon would predominate over any hydrogen in volume. There is also no suggestion in Fister of using an atmosphere temperature of up to about 400 degrees C. Fister only teaches that the substrate is placed on a hot stage and the substrate heated to about 100 degrees C. There is no suggestion to maintain an atmosphere temperature of up to about 400 degrees C, as in the claimed invention now set forth in this Amendment.

It is clear that Fister teaches opposite from the claimed invention because Fister teaches only a combination of nitrogen, hydrogen and neon and not the use of an

argon/hydrogen atmosphere, and especially an atmosphere in which argon predominates over hydrogen, such as about 80% argon and about 20% hydrogen by volume.

Applicants contend that the present case is in condition for allowance and respectfully requests that the Examiner issue a Notice of Allowance and Issue Fee Due. If the Examiner has any questions or suggestions for placing this case in condition for allowance, the undersigned attorney would appreciate a telephone call.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: **MAIL STOP AMENDMENT, COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450**, on this 2nd day of December, 2005.

Nicole Frederick